

Serial No.: New – PCT/JP2004/014913 Nat'l Stage
International filing date: October 8, 2004

AMENDMENTS TO THE TITLE:

Please replace the title of this application with the following rewritten version:

OUTDOOR UNIT OF AN AIR CONDITIONER

AMENDMENTS TO THE SPECIFICATION:

Please replace the title at page 1, line 2 with the following rewritten version:

OUTDOOR UNIT OF AN AIR CONDITIONER

Please add the following paragraph on page 1, between lines 2 and 3:

CROSS-REFERENCE TO RELATED APPLICATIONS

This U.S. National Stage application claims priority under 35 U.S.C. §119(a) to Japanese Patent Application No. 2003-349148 filed in Japan on October 8, 2003, the entire contents of which are hereby incorporated herein by reference.

Please replace the paragraphs beginning at page 1, line 24 with the following rewritten versions:

To this end, as described in Japanese Patent Application Publication No. H09-292142 ~~Patent Document 1~~ below, an outdoor unit of a conventional air conditioner is configured such that an opening is disposed in the partition plate and the reactor is disposed bordering the space inside the fan chamber so that cooling of the reactor is conducted. That is, when the ventilation fan of the outdoor unit rotates, air flows from the outside of the outdoor unit into the fan chamber of the outdoor unit through the heat exchanger, which creates a flow of air in the vicinity of the reactor that is a heat-emitting part. This flow of air can cool the reactor because it disperses the heat accumulating in the vicinity of the reactor.

~~—————<Patent Document 1>~~

~~—————Japanese Patent Application Publication No. H09-292142~~

Please replace the heading at page 1, line 34, with the following rewritten version:

SUMMARY OF THE INVENTION ~~DISCLOSURE OF THE INVENTION~~

Please delete the following heading at page 2, line 1, as indicated below:

~~<Problem that the Invention is to Solve>~~

Please delete the following heading at page 2, line 19, as indicated below:

~~<Means for Solving the Problem>~~

Please replace the paragraph beginning at page 2, line 20 with the following rewritten version:

According to a first aspect of the present invention, an ~~An~~ outdoor unit of an air conditioner ~~recited in claim 1~~ provided that is partitioned into a fan chamber disposed with a fan and a machine chamber other than the fan chamber and in which a heat-emitting part is disposed. The outdoor unit includes a casing and an impermeable plate. The casing is disposed inside the fan chamber, is disposed with openings, and houses inside the heat-emitting part. The impermeable plate employs a structure where the impermeable plate is disposed in the casing between a position where the openings are disposed and a position where the heat-emitting part is housed, and through which it is more difficult for water to pass than air. As the impermeable plate here through which it is more difficult for water to pass than air, a plate disposed with numerous sponge-like minute holes, or a plate with a structure including a portion facing upward in the flow path of the air taken in through the openings in the casing, is included. The plate disposed with numerous minute holes here uses a plate disposed with numerous minute holes than can trap water droplets of a certain size based on the sizes of water droplets, and allows air to pass while trapping water so that the air and water are separated. Further, the plate having a structure including a portion facing upward in the flow path of the air separates water and air based on the specific gravities of water and air, that is, due to the property that it is more difficult for water, whose specific gravity is larger than that of air, to rise.

Please replace the paragraph beginning at page 3, line 9 with the following rewritten version:

However, in the outdoor unit of the air conditioner ~~pertaining to claim 1~~ according to the first aspect of the present invention, the casing for housing the heat-emitting part is disposed inside the fan chamber disposed with the fan, and openings are disposed in the casing. For this reason, a flow of air is created from these openings toward the inside of the casing as a result of the fan being driven, and the accumulation of heat due to the heat emitted from the heat-emitting part housed inside the casing being dispersed can be suppressed. Further, because the casing is disposed inside the fan chamber of the outdoor unit, outdoor rainwater or the like can reach the casing. However, here, the impermeable plate through which it is more difficult for water to pass than air is disposed between the position where the

openings in the casing are disposed and the position where the heat-emitting part is housed. For this reason, even when moisture is mixed with the air and enters through the openings in the casing, the amount of moisture reaching the place where the heat-emitting part is disposed can be effectively reduced by the impermeable plate. For this reason, here, the effect of cooling the heat-emitting part can be improved while preventing water from coming into contact with the heat-emitting part.

Please replace the paragraph beginning at page 3, line 23 with the following rewritten version:

Here, when several the openings are disposed in the casing ~~are plurally present~~, an outdoor unit is also included where an impermeable plate is disposed between each opening and the heat-emitting part. Moreover, an outdoor unit is also included where ~~plural~~ several impermeable plates are disposed between the position where the openings in the casing are disposed and the position where the heat-emitting part is housed. Further, an outdoor unit is also included where the casing and the impermeable plate are integrally formed rather than the impermeable plate being disposed between the openings in the casing and the heat-emitting part.

Please replace the paragraph beginning at page 3, line 31 with the following rewritten version:

According to a second aspect of the present invention, the ~~An~~ outdoor unit of an air conditioner according to the first aspect of the present invention is provided such that ~~of claim 2 comprises the outdoor unit of an air conditioner of claim 1, wherein~~ the casing is disposed on the upper side of the fan chamber.

Please replace the paragraph beginning at page 4, line 7 with the following rewritten version:

According to a third aspect of the present invention, the ~~An~~ outdoor unit of an air conditioner according to the first or second aspect of the present invention is further provided with ~~of claim 3 comprises the outdoor unit of an air conditioner of claim 1 or 2, further comprising~~ an electrical parts unit. The electrical parts unit disposes, inside the machine chamber, electrical parts other than the heat-emitting part.

Please replace the paragraph beginning at page 4, line 29 with the following rewritten version:

According to a fourth aspect of the present invention, the An outdoor unit of an air conditioner according to the third aspect of the present invention is provided such that of
~~claim 4 comprises the outdoor unit of an air conditioner of claim 3, wherein~~ the casing is disposed inside the fan chamber at the side opposite from the side near the machine chamber.

Please replace the paragraph beginning at page 5, line 4 with the following rewritten version:

According to a fifth aspect of the present invention, the An outdoor unit of an air conditioner according to anyone of the first to fourth aspects of the present invention is further provided with
~~of claim 5 comprises the outdoor unit of an air conditioner of any one of claims 1 to 4, further comprising~~ a fan base. By using this fan base, the fan is disposed in the fan chamber. Additionally, the casing is attached to the fan base.

Please replace the paragraph beginning at page 5, line 18 with the following rewritten version:

According to a sixth aspect of the present invention, the An outdoor unit of an air conditioner according to anyone of the first to fifth aspects of the present invention is provided such that
~~of claim 6 comprises the outdoor unit of an air conditioner of any one of claims 1 to 5, wherein~~ the impermeable plate includes protruding portions that protrude in a direction from the portion housing the heat-emitting part toward the openings in the casing. The protruding portions include, in their lower end portions, water-stopping holes that allow the space in the vicinity of the heat-emitting part and the space in the vicinity of the openings of the casing to be communicated in a vertical direction.

Please replace the paragraph beginning at page 6, line 1 with the following rewritten version:

According to a seventh aspect of the present invention, the An outdoor unit of an air conditioner according to the sixth aspect of the present invention is provided such that of
~~claim 7 comprises the outdoor unit of an air conditioner of claim 6, wherein~~ the openings in

the casing are intake ports that take in, to the inside of the casing, air outside the casing. Further, the casing further includes a discharge port that discharges, to the outside, air passing through the water-stopping holes in the impermeable plate.

Please replace the paragraph beginning at page 6, line 11 with the following rewritten version:

According to an eighth aspect of the present invention, the An outdoor unit of an air conditioner according to anyone of the first to seventh aspects of the present invention is provided such that ~~of claim 8 comprises the outdoor unit of an air conditioner of any one of claims 1 to 7, wherein~~ the heat-emitting part is disposed at a position with a predetermined height from a bottom surface of the casing.

Please replace the paragraph beginning at page 6, line 21 with the following rewritten version:

According to a ninth aspect of the present invention, the An outdoor unit of an air conditioner according to anyone of the first to eighth aspects of the present invention is provided such that ~~of claim 9 comprises the outdoor unit of an air conditioner of any one of claims 1 to 8, wherein~~ the heat-emitting part is a reactor used in an inverter circuit for conducting air-conditioning control.

Please delete the following heading at page 6, line 27, as indicated below:

<Effects of the Invention>

Please replace the paragraph beginning at page 6, line 28 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 1~~ the first aspect of the present invention, the effect of cooling the heat-emitting part can be improved while preventing moisture from coming into contact with the heat-emitting part.

Please replace the paragraph beginning at page 6, line 31 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 2~~ the second aspect of the present invention, even when the outdoor unit becomes submerged in water, the risk of the heat-emitting part also becoming submerged in water can be reduced.

Please replace the paragraph beginning at page 6, line 34 (spanning to pages 6 and 7) with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 3~~ the third aspect of the present invention, the adverse affects imparted to the other electrical parts by the heat emitted from the heat-emitting part can be reduced.

Please replace the paragraph beginning at page 7, line 3 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 4~~ the fourth aspect of the present invention, the heat emitted from the heat-emitting part can be prevented from leaking to the other electrical parts, and the adverse affects that the heat-emitting part can exert on the other electrical parts can be more effectively suppressed.

Please replace the paragraph beginning at page 7, line 7 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 5~~ the fifth aspect of the present invention, even when the casing is disposed in the fan chamber, an increase in the number of parts that obstruct the blowing in the blow chamber can be suppressed, and a reduction in the blowing efficiency can be suppressed.

Please replace the paragraph beginning at page 7, line 11 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 6~~ the sixth aspect of the present invention, because it can be made more difficult than air for water, whose specific gravity is greater than that of air, to proceed upward, more moisture can be stopped, and the heat-emitting part can be sufficiently protected from the moisture.

Please replace the paragraph beginning at page 7, line 15 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 7~~ the seventh aspect of the present invention, a flow of air in the vicinity of the heat-emitting part can also be sufficiently ensured, and the cooling of the heat-emitting part can be sufficiently conducted.

Please replace the paragraph beginning at page 7, line 18 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 8~~ the eighth aspect of the present invention, even when moisture enters the inside of the casing from the outside, the risk of the moisture coming into direct contact with the heat-emitting part can be reduced.

Please replace the paragraph beginning at page 7, line 21 with the following rewritten version:

In the outdoor unit of an air conditioner pertaining to ~~claim 9~~ the ninth aspect of the present invention, even if the heat-emitting part is a reactor used in an inverter circuit, the reactor can be sufficiently cooled by the flow of air inside the casing while preventing water from coming into contact with the reactor.

Please replace the brief description of the drawing paragraph beginnings at page 7, line 26 with the following rewritten version:

FIG. 1 is a ~~FIG. 1~~ A view of the external configuration of an air conditioner equipped with the present invention.

FIG. 2 is a ~~FIG. 2~~ A diagram of a refrigerant circuit of the air conditioner of FIG. 1.

FIG. 3 is a ~~FIG. 3~~ A perspective view of the cross section of an outdoor unit.

FIG. 4 is a ~~FIG. 4~~ A diagram of the schematic configuration of the outdoor unit of FIG. 3.

FIG. 5 is an ~~FIG. 5~~ An assembly diagram of a reactor box.

FIG. 6 is a ~~FIG. 6~~ A front cross-sectional view of the reactor box of FIG. 5.

FIG. 7 is a ~~FIG. 7~~ A top cross-sectional view of the reactor box of FIG. 5.

FIG. 8 is a ~~FIG. 8~~ A right-side cross-sectional view of the reactor box of FIG. 5.

Please delete the following heading beginning at page 7, line 34:

~~DESCRIPTION OF THE REFERENCE SYMBOLS~~

Please delete the following paragraphs beginning at page 8, line 1:

- ~~2 — Outdoor Unit (Outdoor Unit)~~
- ~~27 — Fan (Propeller Fan)~~
- ~~28a — Fan Base (Fan Motor Base)~~
- ~~40 — Electrical Parts Unit~~
- ~~42 — Other Electrical Parts (Electrical Parts)~~
- ~~52 — Heat Emitting Part (Reactor)~~
- ~~60 — Casing (Body Casing)~~
- ~~71b — Openings (Water Stopping Holes)~~
- ~~79 — Bottom Surface~~
- ~~91 — Impermeable plate (Water Stopping Left Slit)~~
- ~~91a — Protruding Portions~~
- ~~91b — Water Stopping Holes~~
- ~~O4 — Discharge Port~~
- ~~S1 — Fan Chamber (Blow Chamber)~~
- ~~S2 — Machine Chamber~~

Please replace the heading at page 8, line 16, with the following rewritten version:

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS ~~BEST~~
~~MODE FOR CARRYING OUT THE INVENTION~~

Please replace the heading at page 28, line 1, with the following rewritten version:

WHAT IS CLAIMED IS: CLAIMS